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Quantum dots in microcavities: from single spins to engineered states of light

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Stellingen

Behorend bij het proefschrift

Quantum dots in microcavities:

From single spins to engineered quantum states of light

1. The cross-polarization extinction ratio of linear polarizers can be higher than 10^9 .
Chapter 3 of this thesis
2. Replacing homodyne detection with photon correlation makes assessing the successful addition of a single photon to a coherent state easier.
Chapter 5 of this thesis
3. By developing close-to-optimal sources of single photons, we enter the age of engineering quantum states of light from scratch.
Chapter 6 of this thesis
4. In a sketch of polarization-sensitive optical experiments, mirrors should always be shown.
Chapter 3 of this thesis
5. Benelajla et al. discourage developing sophisticated microscope objectives for high polarization extinction confocal microscopy, despite their experiments were performed in a lens-free setup.
Benelajla et al., Physical Review X 11, 021007 (2021).
6. Tomm et al. show that there are no limits to single-photon brightness.
Tomm et al., Nature Nanotechnology 16, 399 (2021).
7. High-temperature compatible permanent magnets used in the industry have hidden potential also in the quantum technology market, which has been overlooked by Severson et al.
Severson et al., Heliyon 8, e11773 (2022).
8. Serendipitously used effects trigger technology development even without their proper identification.
Kuhlmann et al., Rev. Sci. Instrum. 84, 073905 (2013).
9. Rich societies thrive from complaints.
10. Soon, photons will need loss insurance.
11. Both photonics and worm composting provide resource-efficient solutions to slowing down climate change.

*Petr Steindl
Leiden, 5 July 2023*